

In the Specification (clean copy as amended)

Kindly enter the following changes:

Paragraph bridging Pages 1 and 2:

121 To meet the market needs of high-octane fuel, benzene and alkyl-aromatic hydrocarbons such as toluene and xylene having a high octane value have heretofore been much in gasoline as important gasoline bases, and their concentration in gasoline is high. In general, gasoline is produced in an oil refining process including catalytic reforming and cracking steps, in which the distillates fractionated in each step contain benzene. In the case where benzene is removed from gasoline so as to meet the environmental requirements mentioned above, a relatively large amount of benzene shall be extracted out of gasoline, and effective use of benzene is an emergent problem in the art. For utilizing it, known is a technique of mixing benzene with C9+ aromatic hydrocarbons to yield toluene and xylene through transalkylation. At present, it is said that toluene and xylene have no problematic influence on human health, unlike benzene. In addition, since toluene and xylene have a higher octane value than benzene, the transalkylation to produce them is preferred for increasing the octane value of gasoline.

Paragraph bridging Pages 2 and 3:

A2 In general, benzene having been extracted out of gasoline is separated from gasoline through distillation. The benzene fraction contains a large amount of non-aromatic compounds of which the boiling point range is near that of benzene, especially non-aromatic hydrocarbons such as olefins and naphthenes. In the case where the benzene fraction containing such a large amount of non-aromatic compounds is directly transalkylated with C9+ aromatic hydrocarbons in the presence of hydrogen, the aromatic transalkylation is often accompanied by a side reaction of paraffin decomposition. The side reaction of paraffin decomposition is troublesome in that its hydrogen consumption is large and the

B2 reaction system is undesirably heated owing to the decomposition heat.

Page 3, first full paragraph:

A3 U.S. Patent 5,347,061 discloses a method of converting benzene in a gasoline distillate, and C9+ hydrocarbons, into C7 and C8 alkyl-aromatic hydrocarbons. In this, a benzene-rich C6 hydrocarbon stream derived from distillation of reformed gasoline, and a C9+ hydrocarbon stream are converted into C7 and C8 aromatic hydrocarbons through cracking, transalkylation and alkylation in the presence of an acidic metallocate catalyst. However, in the USP 5,347,061 method, the C9+ hydrocarbon is positively subjected to catalytic cracking to produce an alkylating agent for benzene alkylation, for which, therefore, the production of a non-aromatic hydrocarbon is indispensable.

Paragraph bridging Pages 3 and 4:

A4 Japanese Patent Laid-Open No. 38497/1997 discloses a method for converting aromatic hydrocarbons, in which a starting material that comprises a benzene-containing distillate from a catalytically-reformed product of naphtha, and a trialkylbenzene-containing distillate from a catalytically-cracked product, is transalkylated in the presence of a crystalline aluminosilicate catalyst that carries a metal component of Group VIII of the Periodic Table therewith, to give a reaction product essentially comprising monoalkylbenzenes and dialkylbenzenes. It is stated that mordenite having a low morphology selectivity index is poorly practicable for the conversion as deactivating much through coking, while TSZ is preferred as its total adsorption capacity and morphology selectivity index are both large. The term "total adsorption capacity" referred to therein is meant to indicate the total of toluene, 1,2,4-trimethylbenzene and 1,2,3-trimethylbenzene adsorbed by the catalyst (in terms of ml/100 g of the catalyst, crystalline aluminosilicate); and the term "morphology selectivity index" is meant to indicate the ratio of toluene adsorption capacity/(1,2,4-trimethylbenzene + 1,2,3-trimethylbenzene) adsorption capacity

Ad of the catalyst.

Page 4, last paragraph:

AB Japanese Patent Laid-Open No. 155198/1997 discloses a method for converting C9+ aromatic hydrocarbon compounds in crude oil having a specific boiling point range and not containing benzene, into toluene and C8 aromatic hydrocarbon compounds, in the presence of hydrogen and by the use of a catalyst of a metal selected from metals of Group VIII and Group VIA of the Periodic Table or its compound carried by a carrier that contains zeolite having a maximum micropore diameter of from 0.6 to 1.0 nm and having a ratio of $\text{SiO}_2/\text{Al}_2\text{O}_3$ of at least 50. In this, it is indicated that mordenite is preferred as the specific zeolite to be used, and nickel, palladium and molybdenum are preferred as the metal.

Paragraph bridging Pages 5 and 6:

AB PCT application No. 98/12159 discloses a process for converting an aromatic material that contains ethyl or propyl-containing C9 hydrocarbon compounds in an amount of at least 20 %, into a toluene and xylene-rich product, in which the starting aromatic material is contacted with a catalyst that contains palladium-carrying de-aluminated mordenite having a silica/alumina ratio of from 12 to 30, in the presence of hydrogen to produce the product.

Page 6, third full paragraph:

AM In these examples, however, the aromatic compound conversion efficiency is low, and the references noted above say nothing how to treat non-aromatic compounds that may be present in the starting materials.

Page 6, fourth full paragraph:

AS One object of the present invention is to convert a benzene-containing, aromatic hydrocarbon material into C7, C8 and other useful aromatic hydrocarbons in the presence of a catalyst, increasing the content of the useful aromatic hydrocarbons in the converted

A8 product.

Paragraph bridging Pages 6 and 7:

A9 Another object of the invention is to convert a benzene-containing, aromatic hydrocarbon material into such useful aromatic hydrocarbons in the presence of a catalyst, while reducing the benzene content of the converted product.

Page 7, first full paragraph:

A10 Still another object of the invention is to convert a benzene-containing, aromatic hydrocarbon material into such useful aromatic hydrocarbons in the presence of a catalyst, while reducing catalyst deactivation.

Page 7, second full paragraph:

A11 Still another object of the invention is to convert a benzene-containing, aromatic hydrocarbon material into such useful aromatic hydrocarbons in the presence of a catalyst and hydrogen, while reducing hydrogen consumption.

Page 7, third full paragraph:

A12 To attain the objects as above, the invention provides a method for converting aromatic hydrocarbons, which comprises contacting a starting material of aromatic hydrocarbons that contains benzene and has a non-aromatic compound content of at most 1 % by weight, with a catalyst; and provides a method for converting aromatic hydrocarbons, which comprises removing non-aromatic compounds from a starting material of aromatic hydrocarbons that contains benzene and non-aromatic compounds so as to reduce the non-aromatic compound content of the starting material to 1 % by weight or less, followed by contacting the material with a catalyst.

Page 8, first full paragraph:

A13 Preferably, the starting material is prepared from a crude material having a non-

ATB aromatic compound content of at least 1 % by weight, by removing non-aromatic compounds therefrom to reduce the non-aromatic compound content of the material to at most 1 % by weight. The converted aromatic hydrocarbons may be used as starting materials for ordinary chemicals. In the case where a benzene distillate from gasoline is used as the starting material in the invention, the converted aromatic hydrocarbons may be used as additional gasoline bases for the benzene-poor gasoline. In that manner of one preferred embodiment, the invention is favorable for effectively utilizing benzene extracted from gasoline.

Paragraph bridging Pages 8 and 9:

AM "Aromatic hydrocarbon conversion" in the invention concretely indicates a reaction selected from the group consisting of at least one of transalkylation, dealkylation and disproportionation. The reaction is effected under conditions under which at least one transalkylation, dealkylation and disproportionation reaction is effected, generally in the presence of hydrogen. The reaction pressure may fall between 0.1 and 100 MPa, preferably between 0.5 and 60 MPa, more preferably between 1 and 50 MPa. If the reaction pressure is too low, the catalyst used will soon deactivate and the reaction speed will lower; but if too high, it is uneconomic for the cost of equipment. The reaction temperature may fall between 200 and 650°C, preferably between 250 and 500°C. If the reaction temperature is too low, the reaction speed will lower; but if too high, the aromatic hydrocarbons being processed will much decompose and the catalyst used will soon deactivate. The hydrogen flow rate may fall between 0.1 and 20, preferably between 0.5 and 10 in terms of hydrogen/starting material (mol/mol). If the hydrogen flow rate is too low, the catalyst used will soon deactivate; but if too high, it is uneconomic.
